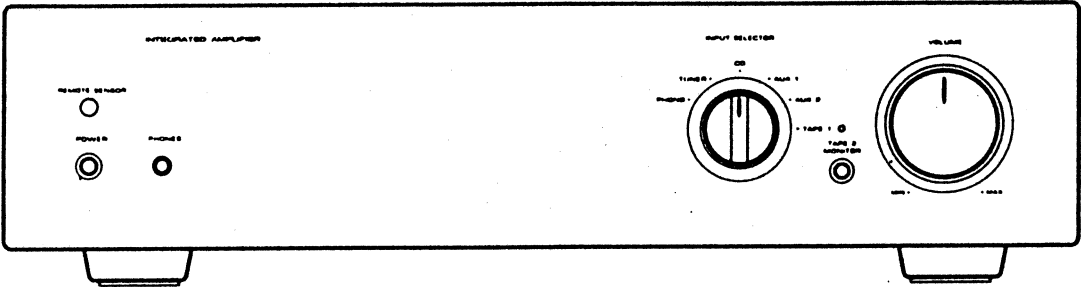


# AX-7R

## STEREO INTEGRATED AMPLIFIER



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## SAFETY PRECAUTIONS

### WARNING

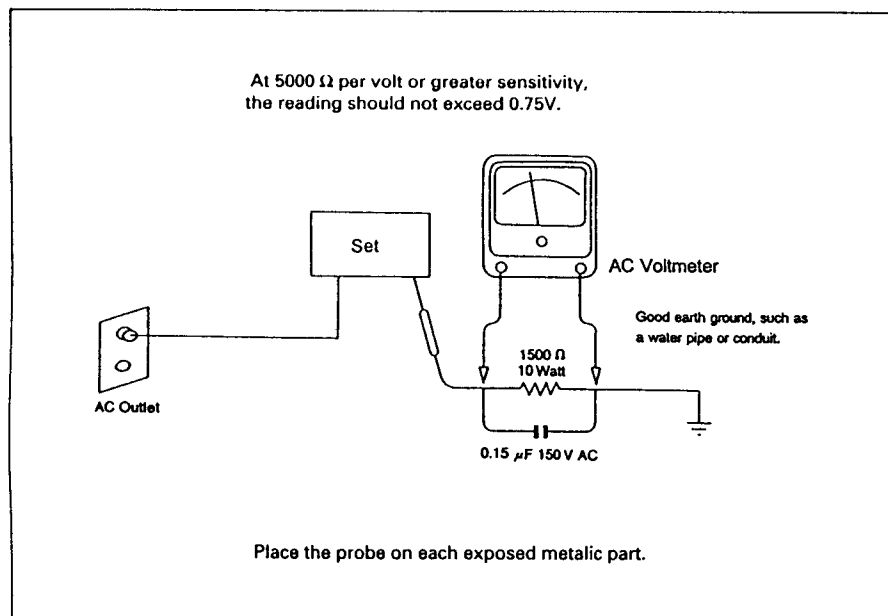
Before servicing this unit, familiarize yourself with the following precautions:

- Many electrical and mechanical parts in this chassis have special safety characteristics that often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements: electrical components having such features are identified by  $\Delta$  in the schematic diagram and the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

- Before returning the set to the customer, always do an AC leakage current check on the

exposed metal parts of the cabinet, such as terminals, screw heads, and metal overlays, to be sure the set is safe to operate danger of electrical shock. Plug the AC line cord directly into a 120 V AC outlet (120 V AC version only). (Do not use a line isolation transformer during this check.) Be sure your AC voltmeter has a sensitivity of 5000  $\Omega$  per volt or greater. Then connect a 1500  $\Omega$  10 watt resistor, paralleled by a 0.15  $\mu$ F 150 V AC capacitor, between a known good earth ground (such as a water pipe, or conduit) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of a 1500  $\Omega$  resistor and a 0.15  $\mu$ F capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75V RMS. This corresponds to 0.2 mA AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



## SPECIFICATIONS

Description			Unit	Normal	Limit
RMS output power: both channels driven, into 8 Ω load, from 20 Hz to 20 kHz, with no more than 0.05 % THD. both channels driven, into 8 Ω load, at 1 kHz with no more than 0.7 % THD. both channels driven, into 4 Ω load, at 1 kHz with no more than 0.7 % THD.			W	52	50
			W	63	60
			W	94	90
Total harmonic distortion: at 8 Ω load, 50 W output, 1 kHz. at 4 Ω load, 80 W output, 1 kHz.			%	0.007	0.015
			%	0.009	0.02
Intermodulation distortion: at 8 Ω load, 50 W output, 60 Hz: 7 kHz=4:1 SMPTE			%	0.004	0.01
Signal to noise ratio ("A" WTD, UNWTD/WTDT):		PHONO CD/AUX, ETC	dB dB	72/76 93/103	66/70 87/97
Frequency response at 1 W output:		PHONO(IAA): 30 Hz-20 kHz CD, AUX, ETC: -1 dB	dB kHz	±0.5 5-180	±1 10-150
Input sensitivity at 50 W output, 1 kHz, 8 Ω load:		PHONO CD, AUX, ETC	mV mV	2.6 160	2.3-2.9 140-180
PHONO Input overload at 1 kHz, 0.7 % THD.			mV	180	150
Function crosstalk:	CD→ AUX	1 kHz	dB	92	85
		10 kHz	dB	91	84
	CD→ TAPE 1	1 kHz	dB	92	85
		10 kHz	dB	91	84
	CD → TAPE 2 MON.	1 kHz	dB	92	85
10 kHz		dB	91	84	
CD→ PHONO	1 kHz	dB	72	65	
	10 kHz	dB	72	65	
Channel separation	CD/AUX, ETC	1 kHz	dB	83	73
		10 kHz	dB	68	55
Damping factor at 1 kHz 8 Ω load.			-	100	70

### General

Speaker load impedance	4-16 $\Omega$
Power consumption	360 W
Dimensions (WxHxD)	440 x 100 x 330 mm (17.3 x 3.9 x 13 inch)
Weight(Net)	10.5 kg (24.1 lbs)

### Power requirements:

- A: 120 V 60 Hz for American/Canadian version
- B: 120/220 V 60/50 Hz for multy voltage version(switchable)
- D: 230 V 50 Hz for German General European version
- E: 240 V 50 Hz for UK/Australian version
- G: 220 V 50 Hz for Other Area

### Note :

- Normal specs represent the design specs. All units should be able to approximate these some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable: in no case should a unit fail to meet limit specs.
- This manual is based on the General European (D) standard, and provides information on regional circuit modification through the use of alternate schematic diagrams or wiring diagram, and information on regional component variations through the use of parts lists. Design and specifications subject to change without notice.

**IC102:  $\mu$ PD 75108CW14**

The diagram shows the pin configuration for the TMS320C42 DSP, organized into two columns of 32 pins each. Pin 1 is on the left, and pin 64 is on the right. Functions are listed next to each pin, with arrows indicating signal direction (input/output) or specific connections.

**Pin 1 to 19:** All pins are GND.

**Pin 20 to 23:**

- Pin 20: Input Selector Switch (SW301) - Input
- Pin 21: Input Selector Switch (SW301) - Input
- Pin 22: Input Selector Switch (SW301) - Input
- Pin 23: E - C - Input

**Pin 24 to 27:** All pins are GND.

**Pin 28 to 32:**

- Pin 28: RMC INPUT - Input
- Pin 29: POWER SWITCH - Input
- Pin 30: TAPE2 MON SWITCH - Input
- Pin 31: Vpp(+4.3V) - Input
- Pin 32: VDD - Input

**Pin 33 to 45:**

- Pin 33: GND
- Pin 34: GND
- Pin 35: GND
- Pin 36: DIGI-LINK - Bidirectional
- Pin 37: GND
- Pin 38: GND
- Pin 39: GND
- Pin 40: GND
- Pin 41: GND
- Pin 42: GND
- Pin 43: GND
- Pin 44: IRQ - Input
- Pin 45: RESET - Input

**Pin 46 to 50:**

- Pin 46: X2 - Input, connected to a 4.19 Mhz crystal and RES 101
- Pin 47: X1 - Input, connected to a 4.19 Mhz crystal and RES 101
- Pin 48: GND
- Pin 49: GND
- Pin 50: H.P SWITCH - Input

**Pin 51 to 54:**

- Pin 51: PROTECTION INPUT - Input
- Pin 52: H-P RELAY - Input
- Pin 53: SP RELAY - Input
- Pin 54: VOL LED - Input

**Pin 55 to 58:**

- Pin 55: VOL DOWN - Input
- Pin 56: VOL UP - Input
- Pin 57: ST-BY RELAY - Input
- Pin 58: TAPE 2 MON LED/RELAY - Input

**Pin 59 to 61:**

- Pin 59: SELECTOR DOWN - Input
- Pin 60: SELECTOR UP - Input
- Pin 61: TAPE 1 RELAY - Input

**Pin 62 to 64:**

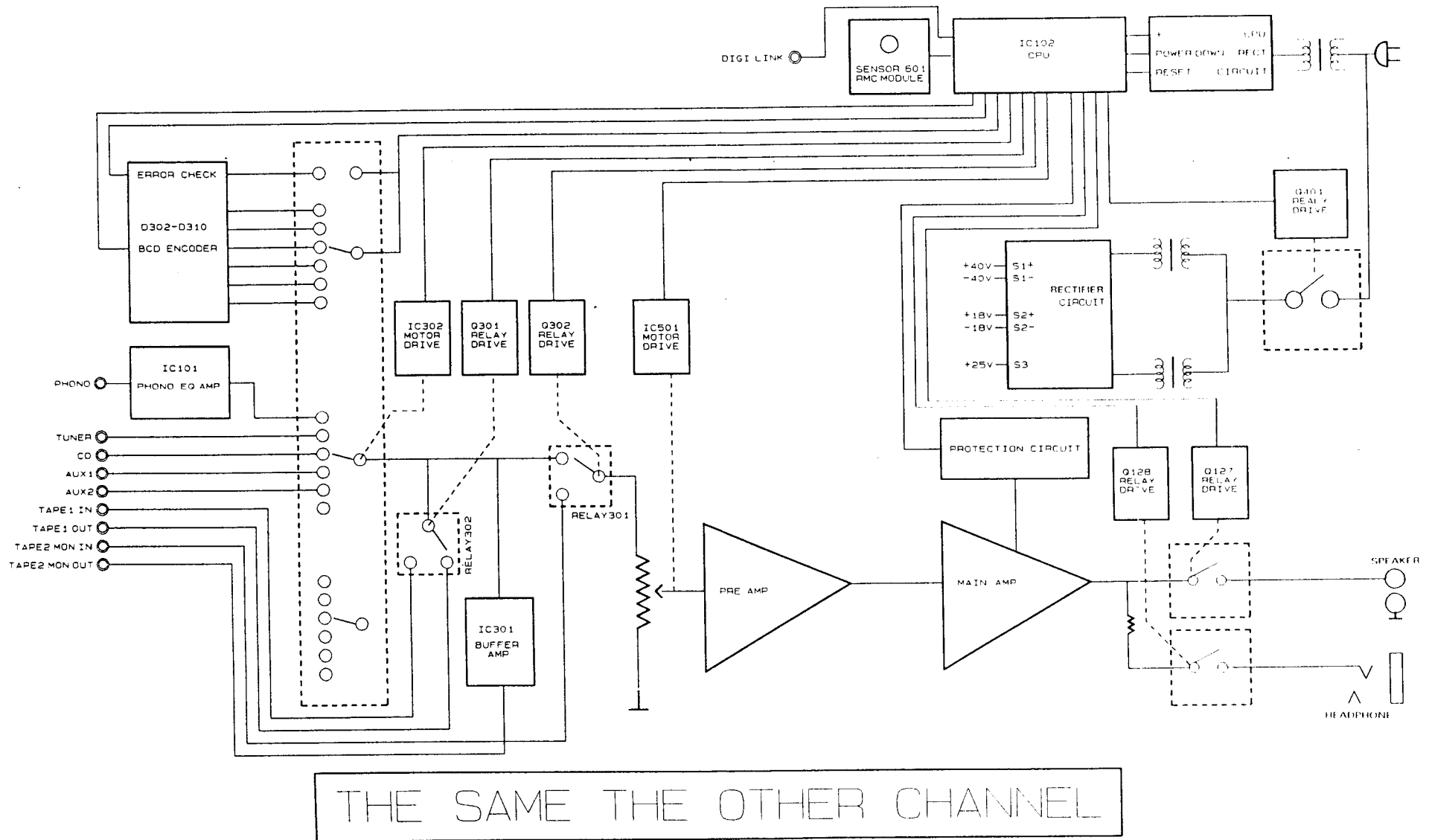
- Pin 62: NC
- Pin 63: GND
- Pin 64: Vss

### 3. Input and Output Terminal Function

Pin Code	I/O	Compatible Port	Function	When Reset
P00	I	INT4	4 bit input port (port 0)	Input
P01	I/O	SCK		
P02	I/O	S0		
P03	I	S1		
P10	I	INT0	4 bit input port (port 1)	Input
P11		INT1		
P12		INT2		
P13		INT3		
P20	I/O	PTO0	4 bit input port (port 2)	Input
P21		PTO1		
P22		PCL		
P23		-		
P30-P33	I/O	-	Programmable 4 bit I/O port (port 3) Each bit can be specified as a input or output individually.	Input
P40-P43	I/O	-	Programmable 4 bit I/O port (port 4)	Input
P50-P53	I/O	-	Programmable 4 bit I/O port (port 5)	Input
P60-P63	I/O	-	Programmable 4 bit I/O port (port 6) Each bit can be specified as a input or output individually.	Input
P70-P73	I/O	-	Programmable 4 bit I/O port (port 7)	Input
P80-P83	I/O	-	Programmable 4 bit I/O port (port 8)	Input
P90-P93	I/O	-	Programmable 4 bit I/O port (port 9)	Input
P120-P123	I/O	-	N-ch. open drain 4 bit I/O port (port 12) Each bit can contain blow up resistor. (mask option) Open drain voltage:12V	Input
P130-133	I/O	-	N-ch. open drain 4 bit I/O port (port 13) Each bit can contain blow up resistor. (mask option) Open drain voltage:12V	Input
P140-143	I/O	-	N-ch. open drain 4 bit I/O port (port 14) Each bit can contain blow up resistor. (mask option) Open drain voltage:12V	Input
PTH00-PTH03	I	-	Variable threshold voltage 4 bit analog inpt port.	
P10	I	-	Timer/event pulse input port.	
P11				
PTO0	I/O	P20	Timer/event pulse output port.	Input
PTO1		P21		
SCK	I/O	P01	Serial clock I/O port.	Input
S0	I/O	P02	Serial data output port.	Input
S1	I	P03	Serial data input port.	Input
INT4	I	P00	Interruption input port (detect edge vector).	Input
INT0	I	P10	Interruption input port (detect edge vector).	Input
INT1		P11		
INT2	I	P12	Detect edge testable input port.	Input
INT3		P13		
PCL	I/O	P22	Clock output port.	Input
X1, X2	-	-	System Clock connection port.	
RESET	I	-	System reset input port(L: active)	
NC	-	-	No connection.	
V <sub>DD</sub>	-	-	Constant voltage supply port.	
V <sub>SS</sub>	-	-	Ground potential supply port.	

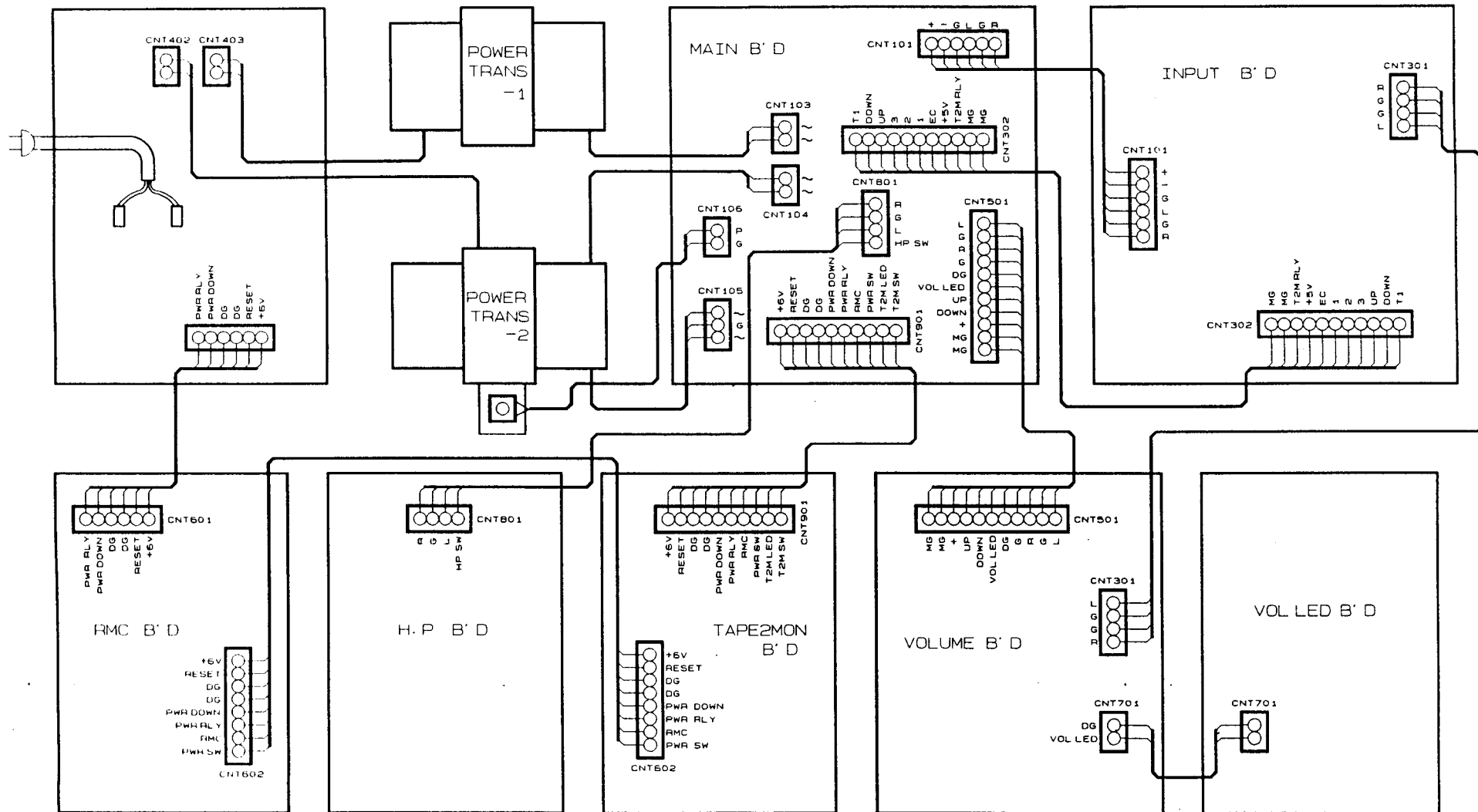
# BLOCK DIAGRAM

Model No.: ACS-7000A



# WIRING DIAGRAM

Model No.: ACS-7000A



## TROUBLESHOOTING

Symptom	Cause and Remedy
Amplifier inoperative	<ul style="list-style-type: none"> <li>Faulty AC power cord. Replace.</li> <li>Defective power switch. Replace.</li> <li>Broken wire in the power transformer. Replace the power transformer.</li> <li>Defective power transformer. Replace.</li> <li>Damaged rectifying diodes D114, D115. Replace the defective diode(s).</li> <li>Short in the rectifying circuit. Repair the short.</li> </ul>
No sound from both channels or one channel	<ul style="list-style-type: none"> <li>Defective in transistor Q127. Replace.</li> <li>Defective in relay RLY 101. Replace.</li> </ul>
Headphones inoperative.	<ul style="list-style-type: none"> <li>Defective in transistor Q128. Replace.</li> <li>Defective in relay RLY 102. Replace.</li> </ul>
The stand-by function does not work.	<ul style="list-style-type: none"> <li>Damaged rectifying diodes D401 to D404. Replace the defective diode(s).</li> <li>Defective in relay RLY401. Replace.</li> <li>Defective stand-by transformer TRANS 401. Replace.</li> <li>Defective in transistor Q401. Replace.</li> <li>Defective stand-by circuit. Repair.</li> <li>Defective IC102. Replace.</li> </ul>
The indicators are not on.	<ul style="list-style-type: none"> <li>Defective IC102. Replace.</li> <li>Defective LED701, LED901. Replace.</li> </ul>
Volume motor does not work.	<ul style="list-style-type: none"> <li>Defective motor volume. Replace.</li> <li>Defective IC 501. Replace.</li> </ul>
Function selector inoperative.	<ul style="list-style-type: none"> <li>Defective function selector motor. Replace.</li> <li>Defective IC 302. Replace.</li> <li>Defective function selector switch SW301. Replace.</li> </ul>

## MECHANICAL PARTS LIST

Ref.No.	Description	Part No.	Q'ty	Version	Ref.No.	Description	Part No.	Q'ty	Version
<b>PACKAGE</b>					39	Jack RCA 4P, Black	4448114610	1	
	Film Soft PE	971500510	1		40	Chassis Back, SECC, Black	046102041111	1	KS
	Cushion Poly	9722038510	1			Chassis Back, SECC, Black	046102041121	1	A
	Box Carton	049604125111	1	KS		Chassis Back, SECC, Black	046102041131	1	B
	Box Carton	049604125163	1	D		Chassis Back, SECC, Black	046102041141	1	C
	Box Carton	049604125113	1	PT INDO		Chassis Back, SECC, Black	046102041151	1	D
<b>ACCESSORIES</b>						Chassis Back, SECC, Black	046102041161	1	E
	Ass'y Commander	058581000164	1	KS		Chassis Back, SECC, Black	046102041171	1	F
	Battery 1.5V AA (R6M)	5518001610	1			Chassis Back, SECC, Black	046102041191	1	PT INDO
	Manual Instruction	9007017941	1	PT INDO	41	System Ground with Nut, Gold	4463100420	1	
	Manual Instruction	9007017942	1	D	42	Cover Top, SECC, Silver Gold	046122029011	1	
	Manual Instruction	9007017940	1	KS	43	AC Outlet, Black	4448105510	1	KS
<b>CABINET &amp; CHASSIS</b>						AC Outlet, Black	4448103210	1	A
1	P.C. Board RMC	4005113730	1			AC Outlet, Black	4448103610	1	B,C,D,F
2 (SENSOR)	Sensor Remote	2408000131	1			Cord AC Power	4308007310	1	KS
3	Switch Tact	4658003710	2			Cord AC Power	4308001410	1	A
4	P.C. Board Headphone	4001100120	1			Cord AC Power	4308000430	1	B,C,D,F
5	Jack Phone, Black	4438005510	1			Cord AC Power	4308007610	1	E
6	Body Front, ABS HF-380, Black	8521008810	1		45	Stopper Cold	6518002320	1	
7	Window Sensor, PC LN1250, Dark Wine	8555048910	1		46	Terminal Ground	4235007710	3	
8	Knob Power, Aluminum, ABS HF-380	048643006911	1		47	P.C. Board Stand By	4005113710	1	
9	Panel Front, Aluminum, ABS HF-380	048602019211	1	KS(Only)	48	Power Transformer, 220 V 60 Hz (1)	2828001097	1	KS
	Panel Front, Aluminum, ABS HF-380	048602019212	1	PT INDO A		Power Transformer, 230 V 50 Hz (1)	2828001297	1	D
10	Knob Input Selector, Aluminum, ABS HF-380	048643005521	1			Power Transformer, 110/220 V 50/60 Hz (1)	2828001277	1	PT IN DO
11	Knob universal, Aluminum, C 3601, Brass	058555043820	1		49	Power Transformer, 220 V 60 Hz (2)	2828001107	1	KS
12	LED, Red	2308220142	2			Power Transformer, 230 V 50 Hz (2)	2828001307	1	D
13	Knob Main Volume, ABS HF-380	048643006811	1			Power Transformer, 110/220 V 50/60 Hz (2)	2828001287	1	PT IN DO
14	P.C. Board Volume LED	4001100110	1		50	Heatsink Regulator TR, Aluminum	7505206620	4	
15	Knob Main Volume, ABS HF-380	048643007011	1		51	Switch Tact	4658004010	1	
16	Indicator LED, ABS, Milky	8555049010	1		52	Switch Slide 3P	4618006610	1	B,PT INDO
17	Volume Main, Silver Gold	3208068310	1		53	Switch Slide 6P	4618006510	1	B,PT INDO
18	P.C. Board Tape Monitor	4005113740	1		54	Adapter Plug	4428300410	1	B,PT INDO
19	P.C. Board Tape Monitor	4005113720	1		55	P.C. Board Voltage Selector	4001100130	1	B
20	Frame Side "L", SECC	6121613310	1						C,D,F
21	Foot, ABS HF-380, Black	6035103810	4		5	Screw #2BTC 3 x 8B	8109230083	40	
22	Heatsink Main Power, AL 6063	75022008210	1		S1	Screw #1PTC 3 x 10B	8119130103	11	
23	Bracket Heatsink, SECC	6505137710	1		S2	Screw Ground	8155000710	2	
24	Screw HEXM 3 x 12Y	8099130121	10		S3	Screw Mecha	8155001210	2	
25	Shaft Universal, Brass	057015004910	1		S4	Screw #2WPTC 3 x 8B	8159230081	15	
26	P.C. Board Main	4001100100	1		S5	Screw WSAM 4 x 8Y	8159440081	8	
27	Frame Side "R"	6123017210	1		S6	Screw WSAM 4 x 8B	8159440083	4	
28	Cover Bottom, SECC	6122420010	1		S7	Screw #2WTC 3 x 8N	8198002010	2	
29	Bracket PCB	6505139610	1		This parts list is applied for only "DEAWOO" model number (ACS-7000A)				
30	Plate Ground	6165143510	1		<b>Ref. No. Description</b>				
31	Terminal Speaker, Black	4408107720	1			<b>Part No.</b>	<b>Q'ty</b>		
32	Jack RCA 2P(R, W), Black	4448305510	1			Box Carton	049605256719	1	
33	Bracket PCB Signal, SECC	6505137810	1			Manual Instruction	9007017945	1	
34	Jack RCA 2P(G, G), Black	4448305520	1			Ass'y Commander	541810113175	1	
35	Sponge Rubber, Black	6715025310	1		1	Panel Front	048602019214	1	
36	Switch Input Selector	4618009910	1		17	Chassis Back	0461020411521	1	
37	P.C. Board Input	4005113700	1						
38	Jack RCA 6P, Black	4448114710	2						

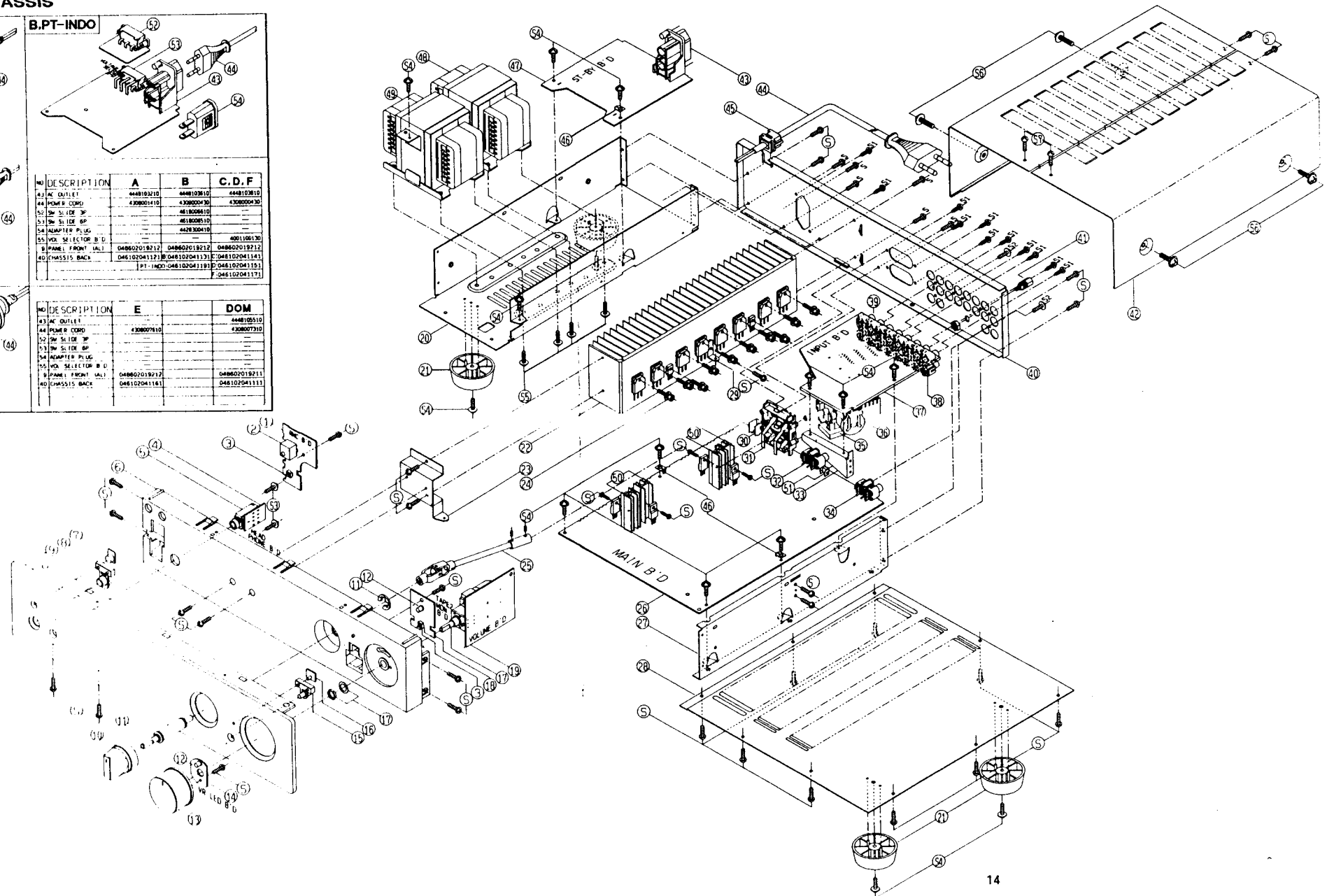
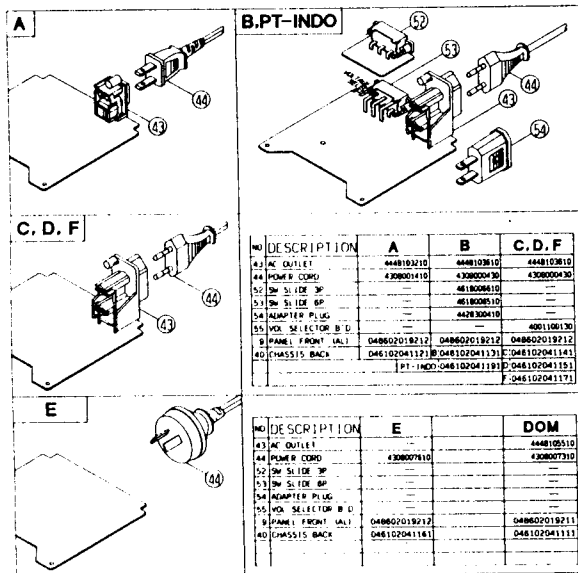
### PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ! in the parts list and the safety can be of special significance. When replacing a component identified with !, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

# EXPLODED VIEW I

Model No.: ACS-7000A

## CABINET & CHASSIS

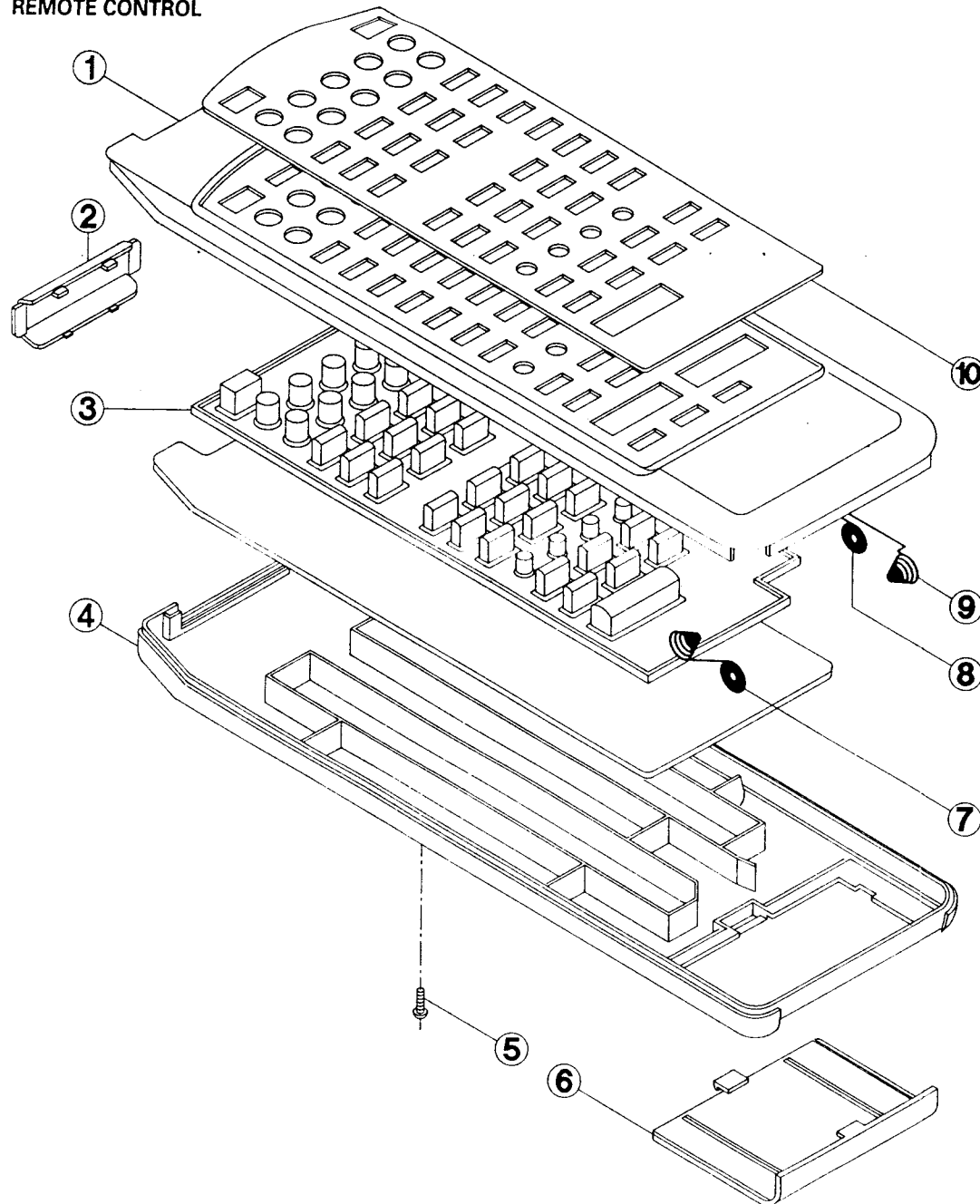




## EXPLODED VIEW II

Model No.: ACS-7000A

REMOTE CONTROL



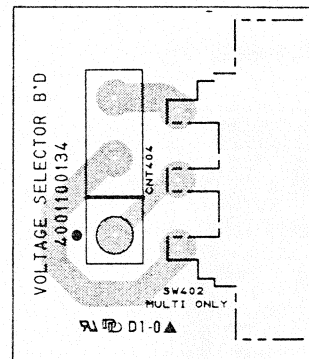
### PARTS LIST.

NO.	PARTS NO.	DESCRIPTION	Q'TY	REMARKS
1	048582001125	COVER TOP	1	KS
	048582001126	COVER TOP	1	D,PT INDO,A,C,D
2	8555040210	UPPER COVER	1	D,PT INDO,A,C,D
3	048722001111	BUTTON SILICON	1	D,PT INDO,A,C,D
	048722001112	BUTTON SILICON	1	D,PT INDO,A,C,D
4	048582001221	COVER BOTTOM	1	
5	8119620084	SCREW #2 PT 2X8N	1	
6	048583004421	COVER BATTERY	1	
7	6555605310	SPRING BATTERY (+, -)	1	
8	6555009710	SPRING BATTERY (+)	1	
9	6555009810	SPRING BATTERY (-)	1	
10	048552003841	INLAY COMMANDER	1	KS
	048552003842	INLAY COMMANDER	1	PT INDO,A,C,D

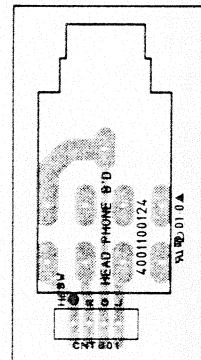
## PRINTED CIRCUIT BOARDS

P.C. Board Main (4001100104)

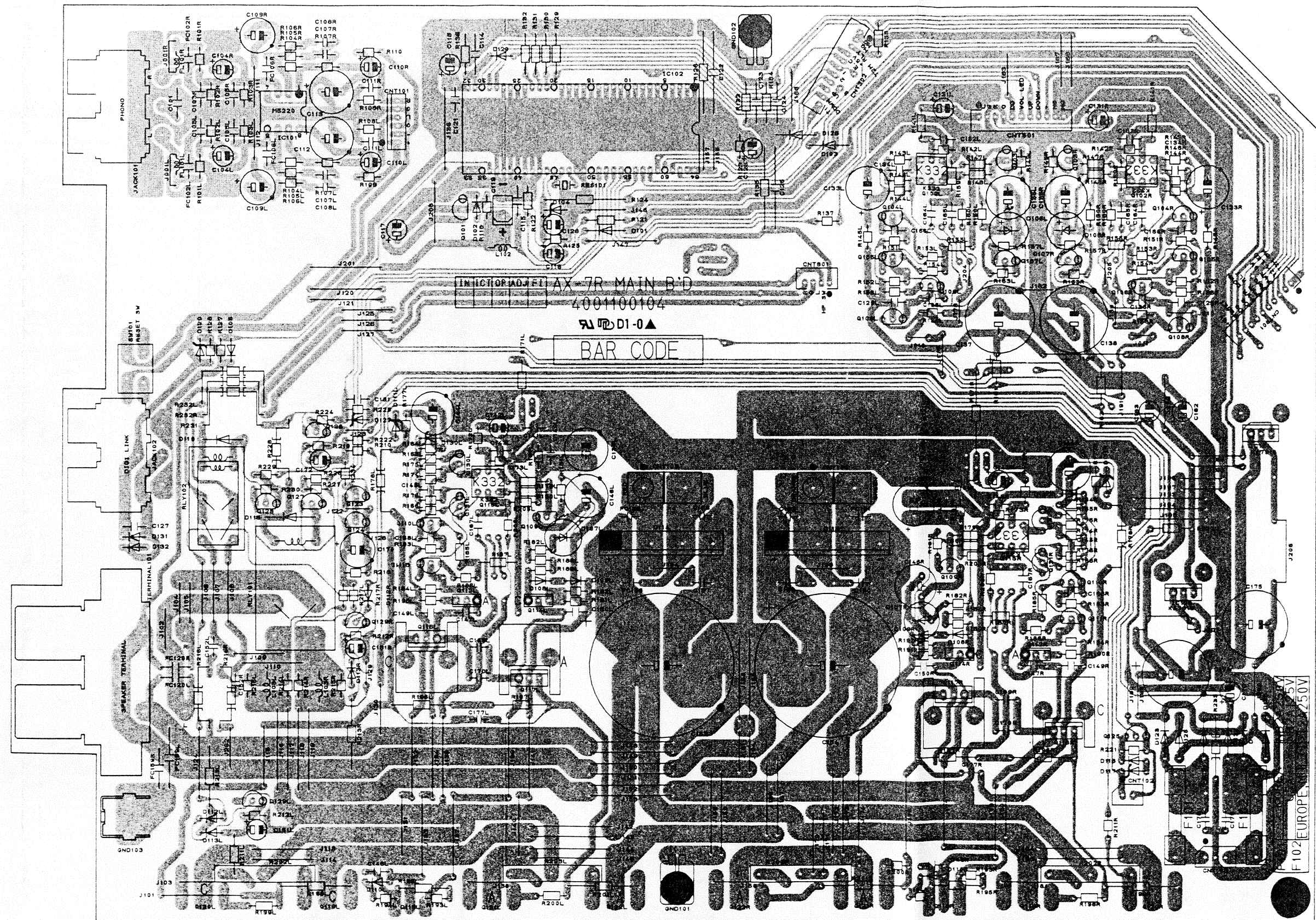
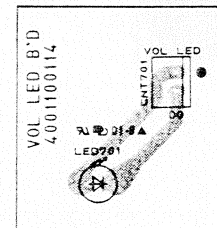
**P.C. Board Voltage Selector  
(4001100134)**



**P.C. Board Headphone  
(4001100124)**



P.C. Board Vol. LED  
(4001100114)







# ELECTRICAL PARTS LIST



**PRODUCT SAFETY NOTICE :** Products marked with ! have special characteristics important to safety. If you replace of these components, read carefully the product safety notice in this manual.  
 Don't degrade the safety of the product through improper servicing.  
 Resistor/Capacitor Tolerance, D : (±0.5%), J : (±5%), K : (±10%), M : (±20%), Z : (+80, -20%).

Ref.No.	Description	Part No.	Q'ty	Version	Ref.No.	Description	Part No.	Q'ty	Version	
	A'ssy P.C. Board Main	054021010085	1		CP104	Wafer LV, 2P	4428525780	1		
30	Plate Ground	61665143510	1		CP105	Wafer, 3P	44285050710	1		
31	Terminal Speaker, Black(Gold)	4408107720	1		CP302	Wafer, 11P	4428517010	1		
32	Jack RCA 2PR, W, Black(Gold)	4448305510	1		CP501	Wafer, 11P	4428517010	1		
33	Jack RCA 2PG, G, Black(Gold)	4448305520	1		CP601	Wafer, 4P	4428516310	1		
46	Terminal Ground	4235007210	2		CP901	Wafer, 10P	4428516910	1		
50	Heatsink Regulator TR, Aluminum	7505206620	4		D101-D103	1N4148M, Switching	2058322101	3		
51	Switch Tact	4658004010	1		D104	Zener, UZ 5.1BSB	2258599103	1		
C101	Ceramic Disc	0.047	μF	50 V Z	D105	1N4148M, Switching	2058322101	1		
C103L/R	Ceramic Tubular	68	pF	50 V J	D106L/R	LED, SLR-34URCF25	2371124701	2		
C104L/R	Electrolytic AU	4.7	μF	35 V M	D107L/R	LED, SLR-34URCF25	2371124701	2		
C105L/R	Ceramic Tubular	33	pF	50 V J	D108L/R	1N4148M, Switching	2058322101	2		
C107L/R	Mylar	0.0056	μF	100 V J	D109L/R	1N4148M, Switching	2058322101	2		
C108L/R	Mylar	0.018	μF	100 V J	D110L/R	1N4148M, Switching	2058322101	2		
C109L/R	Electrolytic AU	47	μF	16 V M	D111L/R	Zener, UZ 2.2BSC	2258599119	2		
C110L/R	Electrolytic AU	2.2	μF	50 V M	D112L/R	1N4148M, Switching	2058322101	2		
C111L/R	Mylar	0.0027	μF	100 V J	D113L/R	1N4148M, Switching	2058322101	2		
C112/C113	Electrolytic AU	100	μF	25 V M	Δ D114/D115	D5SBA60, Bridge	2058512126	2		
C114/C115	Ceramic Disc	0.047	μF	50 V Z	D116	1N4148M, Switching	2058322101	1		
C116	Electrolytic SA	3.3	μF	50 V M	D117	Zener, UZ 8.2BSB	2258599123	1		
C117	Electrolytic SA	1	μF	50 V M	Δ D118/D119	1N4002, Rectifier	2258100135	2		
C118	Electrolytic SG	100	μF	10 V M	D120	Zener, UZ 5.6BSB	2258299104	1		
C119	Backup Capacitor	0.047	μF	5.5 V M	Δ D121-D126	1N4002, Rectifier	2258100135	6		
C121/C122	Ceramic Disc	0.047	μF	50 V Z	D127	Zener, UZ 4.3BSB	2258599102	1		
C123/C124	Ceramic Disc	0.01	μF	50 V Z	D128/D129	1N4148M, Switching	2058322101	2		
C125	Ceramic Disc	0.022	μF	50 V Z	D130L/R	Zener, UZ 8.2BSB	2258599123	2		
C126	Electrolytic SG	100	μF	10 V M	D131/D132	1N4148M, Switching	2058322101	2		
C127	Ceramic Disc	0.047	μF	50 V Z	F101	Fuse, NB 2 A, 250 V	5508202430	1	KS(Only)	
C128	Electrolytic SA	2.2	μF	50 V M	Δ (F101)	Fuse, T 2 A, 250 V	5508302435	1	D,PT INDO	
C129L/R	Ceramic Tubular	5.6	pF	50 V K	Δ F102	Fuse, NB 2 A, 250 V	5508202430	1	KS(Only)	
C131L/R	Electrolytic AU	4.7	μF	50 V M	Δ (F102)	Fuse, T 2 A, 250 V	5508302435	1	D,PT INDO	
C132L/R	Ceramic Tubular	33	pF	50 V J		Clip Fuse	4255001010	4		
C133L/R	Electrolytic AU	220	μF	16 V M	IC101	M5220P	2168215001	1		
C134L/R	Ceramic Tubular	330	pF	50 V J	IC102	μPD75108CWP X14, CPU	2138313217	1		
C135L/R	Electrolytic AU	470	μF	6.3 V M	IC103	KA7818, Regulator	2168601106	1		
C136L/R	Ceramic Tubular	18	pF	50 V J	IC104	KA7915, Regulator	2168600106	1		
C137/C138	Electrolytic AU	1000	μF	16 V M	L102	Coil Inductor, 100 μH	2648610182	1		
C139L/R	Electrolytic AU	220	μF	16 V M	L103L/R	Coil Inductor, 0.5 μH	2648001010	2		
C140L/R	Mylar	0.22	μF	63 V J	O101	KTIC1815YKTC198, NPN, Silicon	2208606104	1		
C141L/R	Ceramic Tubular	330	pF	50 V J	O102L/R	2SK332F	2018217700	2		
C142L/R	Electrolytic AU	10	μF	35 V M	O103L/R	KTIC228YKTC1027, NPN, Silicon	2028406120	2		
C143L/R	Ceramic Tubular	150	pF	50 V J	O104L/R	KTIC228YKTC1026, NPN, Silicon	2208606107	2		
C144L/R	Electrolytic AU	100	μF	25 V M	O105L/R	KTIC228YKTC1026, NPN, Silicon	2208606107	2		
C145L/R	Ceramic Tubular	330	pF	50 V J	O106L/R	KTCA85YKTA1023, PNP, Silicon	2028106107	2		
C146L/R	Electrolytic AU	470	μF	6.3 V M	O107L/R	KTIC228YKTC1027, NPN, Silicon	2028406120	2		
C147L/R	Ceramic Tubular	15	pF	50 V J	O108L/R	KTIC228YKTC1027, NPN, Silicon	2028406120	2		
C148L/R	Ceramic Tubular	1000	pF	50 V J	O109L/R	KTIC228YKTC1027, NPN, Silicon	2028406120	2		
C149L/R	Ceramic Tubular	150	pF	50 V J	O110L/R	KTIC228YKTC1026, NPN, Silicon	2208606107	2		
C150L/R	Ceramic Tubular	150	pF	50 V J	O111L/R	KTIC228YKTC1026, NPN, Silicon	2208606107	2		
C151L/R	Electrolytic SA	4.7	μF	50 V M	O112L/R	2SA185A, PNP, Silicon, Power TR	2028016100	2		
C152L/R	Mylar	0.047	μF	100 V J	O114L/R	2SC485AY, NPN, Silicon, Power TR	2028316100	2		
Δ C153/C154	Electrolytic AU	8200	μF	50 V M	O115L/R	2SK332F	2018217700	2		
C157/C158	Mylar	0.01	μF	400 V J	O116L/R	2SC485AY, NPN, Silicon, Power TR	2028316100	2		
C162/C163	Mylar	0.01	μF	400 V J	O117L/R	2SA185A, PNP, Silicon, Power TR	2028016100	2		
C164L/R	Ceramic Tubular	5.6	pF	50 V K	O118L/R	2SC4107, NPN, Silicon, Bias	2028622110	2		
C165L/R	Ceramic Tubular	2.2	pF	50 V K	O119L/R	2SC385, NPN, Silicon, Power TR	2028416106	2		
C166L/R	Ceramic Tubular	15	pF	50 V J	O120L/R	2SC385, NPN, Silicon, Power TR	2028416106	2		
C167L/R	Ceramic Tubular	4.7	pF	50 V K	O121L/R	2SA1461, PNP, Silicon, Power TR	2028116103	2		
C168L/R	Ceramic Tubular	15	pF	50 V J	O122L/R	2SA1461, PNP, Silicon, Power TR	2028116103	2		
C169L/R	Mylar	1	μF	63 V J	O123-O125	KTIC1815YKTC198, NPN, Silicon	2208606104	3		
C170L/R	Mylar	1	μF	63 V J	O126	KTIA1015YKTA1296, PNP, Silicon	2208206105	1		
C171	Electrolytic SG	470	μF	10 V M	O127/O128	KTIC1815YKTC198, NPN, Silicon	2208606104	2		
C172	Electrolytic SA	4.7	μF	50 V M	O129L/R	KTIC1815YKTC198, NPN, Silicon	2208606104	2		
C173	Electrolytic SG	100	μF	35 V M	O130L/R	KTIC228YKTC1026, NPN, Silicon	2208606107	2		
Δ C174/C175	Electrolytic SG	2200	μF	35 V M	O131L/R	KTIC228YKTC1026, NPN, Silicon	2208606107	2		
C177L/R	Mylar	1	μF	63 V J	R101L/R	Carbon Film	620 ohm 1/5 W J	3069621970	2	
Δ C178/C179	Mylar	0.033	μF	100 V J	R102L/R	Carbon Film	270 kohm 1/5 W J	3069274970	2	
C181	Ceramic Disc	0.047	μF	50 V Z	R103L/R	Carbon Film	56 kohm 1/5 W J	3069563970	2	
C182/C183	Electrolytic SA	2.2	μF	50 V M	R104L/R	Carbon Film	560 kohm 1/5 W J	3069564970	2	
CN101	Lead Assy's, 6P, 180mm	435206186332	1		R105L/R	Carbon Film	4 kohm 1/5 W J	3069439370	2	
CP102	Wafer, 2P	44285050710	1		R106L/R	Carbon Film	820 ohm 1/5 W J	3069821970	2	
CP103	Wafer LV, 2P	4428525780	1		R107L/R	Carbon Film	620 ohm 1/5 W J	3069621970	2	

Ref.No.	Description	Part No.	Q'ty	Version	Ref.No.	Description	Q'ty	Version
R108L/R	Carbon Film	100 kohm 1/5 W J	3069104970	2	Δ R203L/R	Cement, Dual	0.39 ohm	5 W J
R109/R110	Carbon Film	100 ohm 1/5 W J	3069101970	2	R205L/R	Carbon Film	1 kohm	1/5 W J
R118	Carbon Film	100 kohm 1/5 W J	3069104970	1	R206L/R	Carbon Film	20 kohm	1/5 W J
R121	Carbon Film	1.2 kohm 1/5 W J	3069122970	1	R210	Carbon Film	22 kohm	1/5 W J
R122	Carbon Film	10 kohm 1/5 W J	3069103970	1	R211L/R	Carbon Film	2.2 kohm	1/5 W J
R123	Carbon Film	47 kohm 1/5 W J	3069473970	1	R212L/R	Carbon Film	2.2 kohm	1/5 W J
R124/R125	Carbon Film	4.7 kohm 1/5 W J	3069472970	2	R213L/R	Carbon Film	15 kohm	1/5 W J
R126	Carbon Film	47 kohm 1/5 W J	3069473970	1	R214L/R	Carbon Film	10 ohm	1/5 W J
R127	Carbon Film	22 kohm 1/5 W J	3069223970	1	R215L/R	Carbon Film	10 ohm	1/5 W J
R128	Carbon Film	220 kohm 1/5 W J	3069224970	1	R216L/R	Metal Film	10 ohm	1 W J
R129-R135	Carbon Film	47 kohm 1/5 W J	3069473970	7	R217L/R	Carbon Film	12 kohm	1/5 W J
R136	Carbon Film	10 kohm 1/5 W J	3069103970	1	R218	Carbon Film	1.5 kohm	1/5 W J
R137/R138	Carbon Film	330 ohm 1/5 W J	3069331970	2	R219	Carbon Film	22 kohm	1/5 W J
R141L/R	Carbon Film	1.5 kohm 1/5 W J	3069152970	2	R220	Carbon Film	8.2 kohm	1/5 W J
R142L/R	Carbon Film	270 kohm 1/5 W J	3069274970	2	R221	Carbon Film	47 kohm	1/5 W J
R143L/R	Carbon Film	1.8 kohm 1/5 W J	3069182970	2	R222	Carbon Film	22 kohm	1/5 W J
R144L/R	Carbon Film	1.8 kohm 1/5 W J	3069182970	2	R224	Carbon Film	6.8 kohm	1/5 W J
R145L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2	R225-R227	Carbon Film	4.7 kohm	1/5 W J
R146L/R	Carbon Film	820 ohm 1/5 W J	3069821970	2	R228	Metal Film	10 ohm	1 W
R147L/R	Carbon Film	47 ohm 1/5 W J	3069470970	2	R229/R230	Carbon Film	4.7 kohm	1/5 W J
R148L/R	Carbon Film	47 ohm 1/5 W J	3069470970	2	R231	Metal Film	10 ohm	1 W
R149L/R	Carbon Film	390 ohm 1/5 W J	3069391970	2	R232L/R	Metal Film	560 ohm	1 W
R150L/R	Carbon Film	47 kohm 1/5 W J	3069472970	2	R233	Metal Film	2.2 kohm	1 W
R151L/R	Carbon Film	820 ohm 1/5 W J	3069821970	2	R234	Carbon Film	22 kohm	1/5 W
R152L/R	Carbon Film	820 ohm 1/5 W J	3069821970	2	RES101	Resonator, CSB455E		
R153L/R	Carbon Film	22 ohm 1/5 W J	3069220970	2		Ass'y Posistor, 280mm		
R154L/R	Carbon Film	22 ohm 1/5 W J	3069220970	2		A'ssy P.C. Board Volume LED		
R155L/R	Carbon Film	2.7 kohm 1/5 W J	3069272970	2	LED701	LED, SLR-34URCF03		
R156L/R	Carbon Film	39 ohm 1/5 W J	3069390970	2	CN701	Wire, 2P, 180mm		
R157L/R	Carbon Film	82 ohm 1/5 W J	3069820970	2				
R158L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2		A'ssy P.C. Board Headphone		
R159L/R	Carbon Film	620 ohm 1/5 W J	3069621970	2	8	Jack Phone, Black(Gold)		
R160L/R	Carbon Film	3.3 kohm 1/5 W J	3069332970	2	CN801	Lead Ass'y, 4P, 450mm		
R161/R162	Carbon Film	39 ohm 1/5 W J	3069390970	2				
R163L/R	Carbon Film	68 ohm 1/5 W J	3069680970	2		A'ssy P.C. Board Voltage Selector		
R164L/R	Carbon Film	33 kohm 1/5 W J	3069333970	2	CP404	Wafer LV, 3P		
R165L/R	Carbon Film	82 ohm 1/5 W J	3069820970	2				
R166L/R	Carbon Film	82 ohm 1/5 W J	3069820970	2		A'ssy P.C. Board Input		
R167L/R	Carbon Film	2.2 kohm 1/5 W J	3069222970	2	36	Switch Input Selector		
R171L/R	Carbon Film	620 ohm 1/5 W J	3069621970	2	38	Jack RCA 6P, Black(Gold)		
R172L/R	Carbon Film	1.2 kohm 1/5 W J	3069122970	2	39	Jack RCA 4P, Black(Gold)		
R173L/R	Carbon Film	56 kohm 1/5 W J	3069563970	2				
R174L/R	Carbon Film	820 ohm 1/5 W J	3069821970	2	C303/C304	Electrolytic SA	10 μF	50 V I
R175L/R	Carbon Film	1.8 kohm 1/5 W J	3069182970	2	C305L/R	Electrolytic SA	2.2 μF	50 V I
R176L/R	Carbon Film	1.8 kohm 1/5 W J	3069182970	2	C306/C307	Electrolytic SG	47 μF	25 V I
R177L/R	Carbon Film	100 ohm 1/5 W J	3069101970	2	C308L/R	Electrolytic SA	2.2 μF	50 V I
R178L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2	C309L/R	Ceramic Tubular	1000 μF	50 V
R179L/R	Metal Film	47 ohm 1/5 W J	3069470970	2	C310-C312	Electrolytic SG	47 μF	25 V
R180L/R	Carbon Film	47 ohm 1/5 W J	3069470970	2	C313	Ceramic Disc	0.047 μF	50 V
R181L/R	Carbon Film	390 ohm 1/5 W J	3069391970	2	CN301	Lead Ass'y, 4P, 300mm		
R182L/R	Carbon Film	15 kohm 1/5 W J	3069153970	1	CN302	Lead Ass'y, 11P, 120mm		
R183L/R	Carbon Film	820 ohm 1/5 W J	3069821970	2	CP101	Wafer, Angle, 9P		
R184L/R	Carbon Film	820 ohm 1/5 W J	3069821970	2	D301	1N4002, Rectifier		
R185L/R	Carbon Film	22 ohm 1/5 W J	3069220970	2	D302-D310	1N4148M, Switching		
R186L/R	Carbon Film	22 ohm 1/5 W J	3069220970	2	D311	1N4002, Rectifier		
R187L/R	Carbon Film	5.1 kohm 1/5 W J	3069512970	1	IC301	KA4556/KIA7566S, OP Amp		
R188L/R	Carbon Film	3.9 kohm 1/5 W J	3069392970	2	IC302	TAT2915, Motor Driver		
R189L/R	Carbon Film	3.9 kohm 1/5 W J	3069390970	2	Q301/Q302	1TC1015/KTC139L, NPN, Silicon		
R190L/R	Carbon Film	39 ohm 1/5 W J	3069690970	2	R301L/R	Carbon Film	1.5 kohm	1/5 W
R191L/R	Carbon Film	68 ohm 1/5 W J	3069680970	2	R302	Carbon Film	47 kohm	1/5 W
R192L/R	Carbon Film	68 ohm 1/5 W J	3069680970	2	R303	Carbon Film	560 ohm	1/5 W
R193L/R	Carbon Film	390 ohm 1/5 W J	3069391970	2	R304	Carbon Film	47 kohm	1/5 W
R194L/R	Carbon Film	1.8 kohm 1/5 W J	3069182970	2	R309L/R	Carbon Film	1.2 kohm	1/5 W
R195L/R	Carbon Film	620 ohm 1/4 W J	3069621270	2	R311L/R	Carbon Film	270 kohm	1/5 W
R196L/R	Carbon Film	22 ohm 1/5 W J	3069220970	2	R312/R313	Carbon Film	47 ohm	1/5 W
R197L/R	Carbon Film	22 ohm 1/5 W J	3069220970	2	R314L/R	Carbon Film	100 kohm	1/5 W
R198L/R	Carbon Film	2.2 ohm 1/5 W J	3069229970	2	R315L/R	Carbon Film	12 kohm	1/5 W
R199L/R	Carbon Film	2.2 ohm 1/5 W J	3069229970	2	R316	Carbon Film	33 ohm	1/5 W
RES101	Resonator, CSTA-18MWG		3538101880	1	R317	Carbon Film	18 kohm	1/5 W
RLY101	Relay, JC-2AD-OC24V		5518001450	1	R318	Carbon Film	3.9 kohm	1/5 W
RLY102	Relay, OSA-SS-2240N3		5528001610	1	R319/R320	Carbon Film	47 kohm	1/5 W
GNDY101	Ground Plate		4235007310	1	R321	Carbon Film	560 ohm	1/5 W
GNDY102	Ground Plate		4235007310	1	RLY301	Relay, GSV-2-HI		
R200L/R	Carbon Film	2.2 ohm 1/5 W J	3069229970	2	RLY302	Relay, GSV-2-HI		
R201L/R	Carbon Film	2.2 ohm 1/5 W J	3069229970	2				
Δ R202L/R	Cement, Dual	0.39 ohm 5 W J	3069039776	2				

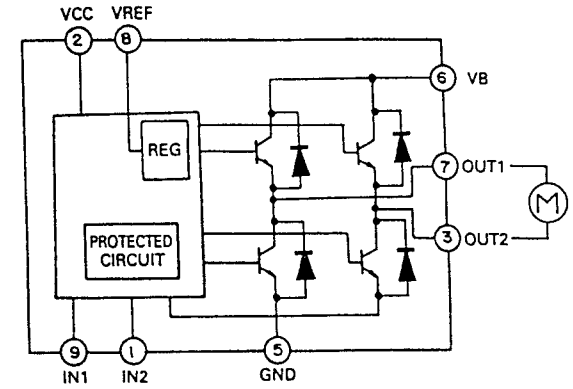
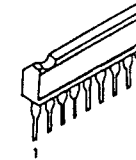
Description	Part No.	Q'ty	Version	Ref.No.	Description	Part No.	Q'ty	Version
A'ssy P.C. Board Stand-By					A'ssy P.C. Board Commander			
Capacitor, DE7150F 472MVA1				IC101	μPD6122G-002			
Electrolytic SG	330	μF	250 V M	D101	Diode, EL-2			
Electrolytic SA	1	μF	50 V M	D102	IN4148, Switching			
Mylar	0.033	μF	100 V J	C101	Ceramic Tubular	100	pF	50 V J
Wafer LV, 2P				C102	Ceramic Tubular	100	pF	50 V J
Wafer LV, 4P				C103	Electrolytic SS	47	μF	10 V M
Wafer LV, 2P				TR101	KTD1302, NPN, Silicon			
Wafer LV, 4P				R101	Carbon Film	15	ohm	1/5 W J
Wafer LV, 2P				R102	Carbon Film	220	kohm	1/5 W J
Wafer LV, 4P				R103	Carbon Film	220	kohm	1/5 W J
Wafer LV, 3P				R104	Carbon Film	220	kohm	1/5 W J
Wire LV, 3P, 140mm				R105	Carbon Film	220	kohm	1/5 W J
Wafer, 6P				R106	Carbon Film	220	kohm	1/5 W J
Pin Solder				RES101	Resonator, CSB455E			
Ground Plat								
1N4002, Rectifier								
1N4148M, Switching								
Fuse, NB 250 mA, 250V								
Fuse, T 250 mA, 250 V								
Fuse, NB 3 A, 250V								
Fuse, T 3.15 A, 250 V								
Fuse, T 6.3 A, 250 V								
Fuse, T 3.15 A, 250 V								
Fuse, T 2.5 A, 250 V								
Clip Fuse								
Clip Fuse								
MPSA06Y, NPN, Silicon								
KTC1815/KTC139, NPN, Silicon								
Carbon Film	4.7	kohm	1/5 W J					
Carbon Film	47	kohm	1/5 W J					
Metal Film	33	ohm	1 W J					
Carbon Film	18	kohm	1/5 W J					
Metal Film	390	ohm	1 W J					
Relay, OST-S-112DM(TVS)								
KA7806, Regulator								
A'ssy P.C. Board Volume					A'ssy P.C. Board RMC			
Volume Main, Silver Gold								
Electrolytic SG	47	μF	25 V M					
Ceramic Disc	0.047	μF	50 V Z					
Lead Ass'y, 11P, 120mm								
Wafer, 2P								
Wafer, 4P								
TA7291S, Motor Driver								
Carbon Film	33	ohm	1/5 W J					
Carbon Film	15	kohm	1/5 W J					
Carbon Film	4.7	kohm	1/5 W J					
A'ssy P.C. Board Tape 2 MON.					A'ssy P.C. Board Tape 2 MON.			
Switch Tact								
Lead Ass'y 10P, 120mm								
LED, SLR-34URCF03								

#### DUCT SAFETY NOTICE

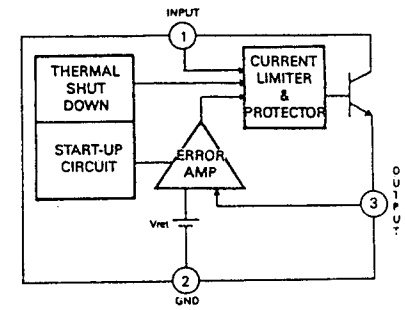
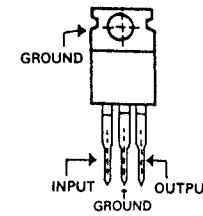
h precaution in this manual should be follower during servicing. Components identified with the IEC symbol  in the ts list and the safety can be of special significance. When replacing a component identified with , use only the lacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the ts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are eptably insulated from the supply circuit before returing the product to the customer.

## IC'S LEAD IDENTIFICATIONS & INTERNAL DIAGRAM

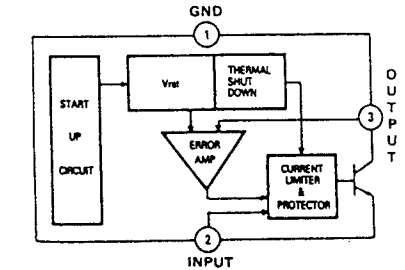
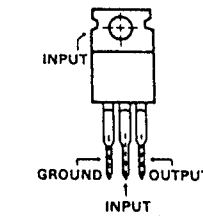
TA7291S : IC501, IC302



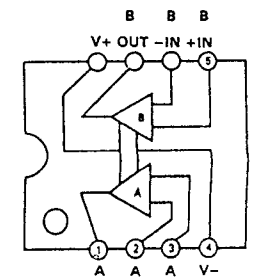
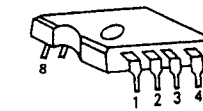
GD78XX : IC103, IC401



GA79XX : IC104



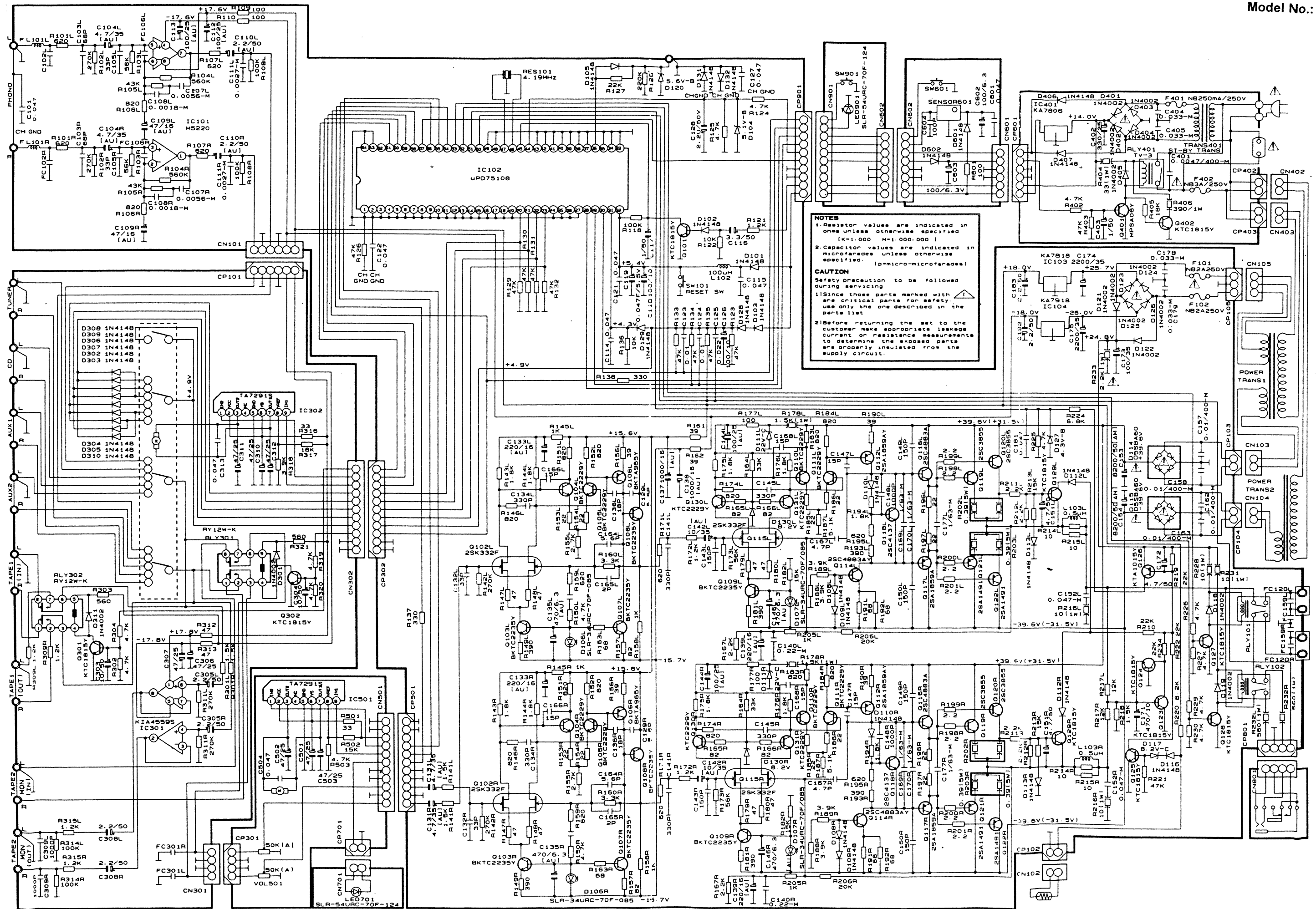
M5220P : IC101



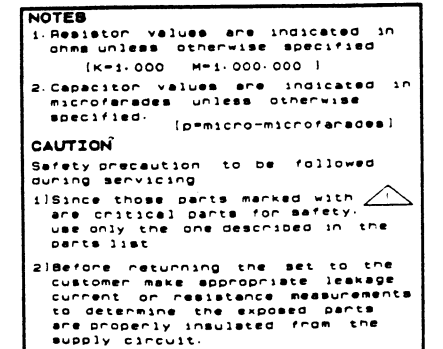
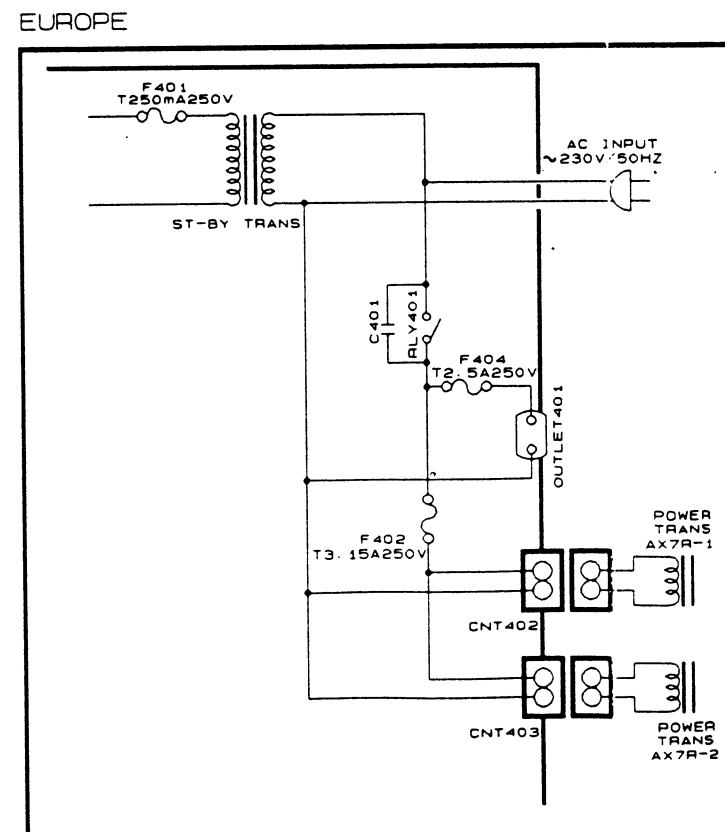


# SCHEMATIC DIAGRAM I

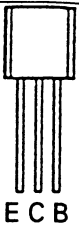
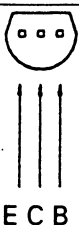
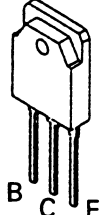
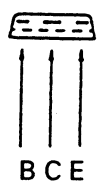
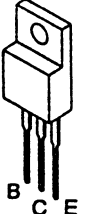
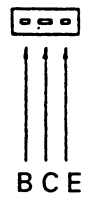
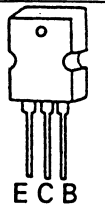

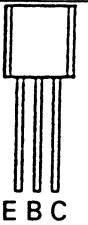

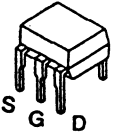
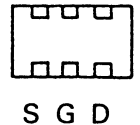
Model No.: ACS-7000.



**Model No.: ACS-7000A**



## TRANSISTORS LEAD IDENTIFICATION

Transistor	Front View	Bottom view
KTC 1815Y KTA 1015Y KTC 2229Y KTC 2235Y KTA 965Y	 ECB	 ECB
2SC 3855 2SA 1491	 BCE	 BCE
2SA 1859A-Y 2SC4883A-Y	 BCE	 BCE
2SC4137	 ECB	 ECB
KMPS A 06	 EBC	 EBC
2SK332F	 S G D	 S G D
<b>TERMINAL NAME</b>		
<div style="display: flex; justify-content: space-around;"> <div> B → BASE  C → COLLECTOR  E → EMITTER </div> <div> S → SOURCE  C → GATE  D → DRAIN </div> </div>		